

Claims

- dark*
- ①*
- Computer controls which includes blades*
1. An automatic portable creasing machine comprising:
- an entrance portion for receiving a binder board;
- a means for sensing a front edge defined in the binder board, the sensing means positioned about the entrance portion;
- a pair of motor driven rollers positioned about the entrance portion to engage and feed a binder board through the machine;
- a means for forming creases in the binder board at positions such that the binder board may bend at said creases to form a binder cover; *64,65,66*
- Computer controls*
- a means for automatically determining the positions to form said creases in the binder board, the automatic determining means receives a signal from the sensing means to indicate a front edge of a binder board being fed through the entrance portion, the automatic determining means upon receiving the signal controls the motor driven rollers to move the binder board to said positions and controls the crease forming means to create a crease in the binder board at said positions.

2. The machine of claim 1, wherein the positions to form creases in said binder board is based at least upon one of the following: a style of the binder cover, a ring mechanism capacity size, placement of a ring mechanism on the binder cover, and shape of the ring mechanism.

3. The machine of claim 2 further comprising:

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a means for entering information regarding the style of the binder cover, the ring mechanism capacity size, the placement of the ring mechanism on the binder cover, and the shape of the ring mechanism, said entering means is in communication with the determining means such that the determining means determines said positions to form said creases in said binder board from said information entered on the entering means.

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4. The machine of claim 1 further comprising means to form rivet holes in the binder cover.

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5. The machine of claim 1, wherein the creasing means includes a pair of upper nibs and a lower blade oppositely disposed and which move inwardly towards each other such that the lower blade intersects between the pair of upper nibs, wherein when a binder board is positioned between said upper nibs and said lower blade and said upper nibs and said lower blades move inwardly towards each other, a portion of said binder board is displaced to form a crease.

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6. The machine of claim 1 further comprising a means for adjusting a depth of the crease.

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7. A portable crease forming machine for forming creases transversely in a binder board, such that said binder board may bend at said creases to form a binder cover that is further attached to a ring mechanism to create a ring binder, the machine comprising:

entrance and exit openings for feeding a single binder board therethrough; and means for forming creases transversely in said single binder board at predetermined positions.

No 3 8. The crease forming machine of claim 7, wherein the crease forming means includes a pair of movable upper nibs and an oppositely disposed and moveable lower blade that is positioned such that when said upper nibs and said lower blade move inwardly toward each other, the lower blade intersects the pair of upper nibs, wherein when a binder board is positioned between said upper nibs and said lower blade and said upper nibs and said lower blades move inwardly towards each other, a portion of said binder board is displaced to form a crease.

No 4 9. The crease forming machine of claim 7 further comprising:
a pair of motor driven rollers spaced about the entrance, said rollers automatically feed a binder board through said machine; and
means for controlling the motor driven rollers and the crease forming means such that said binder board being automatically fed through said machine is temporarily stopped at predetermined positions to have a crease formed at said predetermined positions.

No 5 10. The crease forming machine of claim 9 further comprising:
a means for sensing a front edge of a binder board being fed through said machine and in communication with the controlling means in order to determine when a binder board is being fed through said machine and determine said predetermined positions.

- obj* 11. The crease forming machine of claim 10, wherein said predetermined positions is based upon at least one of the following: a style of binder cover, a placement of a ring mechanism on said binder cover, a ring mechanism capacity, and a shape of a ring mechanism.
- obj* 12. The crease forming machine of claim 11 further comprising:
a numeric keypad and display for entering at least one of the following: a style of binder cover, a placement of a ring mechanism on said binder cover, a ring mechanism capacity, and a shape of a ring mechanism.
- obj* 13. The crease forming machine of claim 7 further comprising:
obj a crease adjustment level for adjusting the depth of the crease formed by the crease forming means.
- obj* 14. The crease forming machine of claim 7 further comprising:
obj an external switch for actuating the creasing means.
- obj* 15. The crease forming machine of claim 7 further comprising:
obj a table extending outwardly from the exit portion of the machine, the table including at least two markings spaced apart that indicate a proper position to align a binder board in order to form at least two creases.

16. A machine for forming creases transversely across a binder board wherein the binder board may bend about said creases to form a binder cover for use with a ring mechanism to form a ring binder, the machine comprising:

103 a top portion attached to a bottom portion;
a channel having an entrance and an exit for feeding a binder board through the machine;
a pair of downwardly movable upper nibs supported above the channel and an upwardly movable lower blade supported below the channel, the upper nibs and lower blade positioned such that when moved inwardly towards each other the lower blade intersects the pair of upper nibs; and
a means for actuating the upper nibs and lower blade such that when a binder board is in said channel, the actuation of the upper nibs and lower blade forms a crease transversely across the binder board.

ad 17. The machine of claim 16 further comprising:

103 a sensor positioned in the top portion of the machine and about the entrance of the channel, the sensor sends a signal indicating when a binder board is being fed through the channel;
a pair of motor driven rollers positioned above and below the channel separately to engage a binder board being fed through the channel and to automatically feed the binder board through the channel; and
an automatic determining means in communication with the sensor in order to receive signals that a binder board is being fed through the channel, the automatic determining

means is further in communication with the rollers to temporarily stop the binder board at positions in which to form a crease, and the automatic determining means is further in communication with the actuating means to actuate the upper nibs and lower blade to form a crease at said positions.

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18. The machine of claim 16, wherein the actuating means is a pedal.

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19. The machine of claim 17 further comprising:

a means to manually activate the actuating means to form a crease in a binder board at a predetermined position that is separate from the positions automatically determined by the automatic determining means.

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20. The machine of claim 17 further comprising:

a numeric keypad and display in communication with the automatic determining means, the numeric keypad and display for entering information regarding a desired shape and size of a ring mechanism and a style of binder cover, wherein the information is used by the automatic determining means for determining the positions in which to form creases in a binder board.

21. A method of forming a ring binder comprising:

forming at least two creases transversely across a binder board such that the creases partition the binder board into at least a spine area and a front and back area, wherein the spine area is defined intermediate of the front and back area;

forming a pair of holes in the binder board sufficiently spaced apart to align with apertures on a ring mechanism;

attaching the ring mechanism to the binder board with a pair of removable rivets that align in the apertures of the ring mechanism and the holes in the binder board; and bending the binder board along the creases to form the ring binder.

22. The method of claim 21, wherein the step of forming at least two creases, further includes:

computing from a front edge defined in the binder board proper positions to form each crease.

23. The method of claim 21, wherein the step of forming at least two creases includes forming two creases sufficiently spaced apart to define the spine area therebetween such that the step of attaching the ring mechanism to the binder board includes attaching the ring mechanism to the binder board between said creases.

24. The method of claim 21, wherein the step of forming at least two creases includes forming three creases sufficiently spaced apart to define the spine area between any two adjacent creases such that the step of attaching the ring mechanism to the binder board includes attaching the ring mechanism to the binder board between any two adjacent creases.

25. The method of claim 21, wherein the step of forming at least two creases includes forming a plurality of creases in proximity to each other to define the spine area such that the

step of attaching the ring mechanism to the binder board includes attaching the ring mechanism to a back area of the binder board.

26. The method of claim 21, wherein:

the step of forming at least two creases includes forming a plurality of creases in proximity to each other to define the spine area,

the step of forming a pair of holes in the binder board includes forming at least two pairs of holes adjacent to at least two different creases, and

the step of attaching the ring mechanism to the binder board includes attaching the ring mechanism to the binder board by aligning apertures in said ring mechanism with one of the pairs of holes in the binder board and attaching said ring mechanism to said binder board with a pair of removable rivets,

whereby said ring mechanism may be removed and replaced with a second ring mechanism having a different ring capacity or ring shape, and whereby the second ring mechanism may be attached to the binder board by aligning apertures in said second ring mechanism with one of the other pairs of holes in the binder board and attaching said second ring mechanism to said binder board with said pair of removable rivets.

27. A method of forming a ring binder from an uncompromised binder board, the method comprising:

forming at least two creases across the binder board such that the creases partition the binder board into at least a spine area and a front and back area, wherein the spine area is

defined intermediate of the front and back area, and wherein the creases are placed in positions computed from a front edge defined in the binder board;

boring a pair of holes in the binder board sufficiently spaced apart to align with apertures on a ring mechanism;

attaching the ring mechanism to the binder board with a pair of removable rivets that align in the apertures of the ring mechanism and the holes in the binder board; and

bending the binder board along the creases to form the ring binder.

28. The method of claim 27, wherein:

the step of forming at least two creases includes forming a plurality of creases in proximity to each other to define the spine area,

the step of boring a pair of holes in the binder board includes boring at least two pairs of holes adjacent to at least two different creases, and

the step of attaching the ring mechanism to the binder board includes attaching the ring mechanism to the binder board by aligning apertures in said ring mechanism with one of the pairs of holes in the binder board and attaching said ring mechanism to said binder board with a pair of removable rivets,

whereby said ring mechanism may be removed and replaced with a second ring mechanism having a different ring capacity or ring shape, and whereby the second ring mechanism may be attached to the binder board by aligning apertures in said second ring mechanism with one of the other pairs of holes in the binder board and attaching said second ring mechanism to said binder board with said pair of removable rivets.

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29. A hole forming machine for boring holes in a binder board, comprising:
a substantially flat bed having a top portion;
a dowel holder having a bottom portion and connected to the top portion the flat bed, the dowel holder includes a plurality of slots, and includes an opened area along the bottom portion such that a clearance sized to receive a binder board is defined between the top portion of the flat bed and the bottom portion of the dowel holder;
a pair of dowels that are separately received in said slots, each dowel having a plurality of teeth and have a substantially sharp bottom;
a horizontal rack contained within the dowel holder and having a plurality of teeth that engage the plurality of teeth of the dowels; and
a lever connected to the horizontal rack such that the lever when pushed downwardly, the horizontal rack rotates such that the dowels similarly move downwardly,
whereby when a binder board is positioned within the clearance and the lever is pushed downwardly a pair of holes is bored by the dowels into the binder board.

30. The hole forming machine of claim 29 further comprising a removable dowel cover.

31. The hole forming machine of claim 29 wherein the flat bed includes a grid to align an edge defined in the binder board such that a proper placement of the holes may be predetermined.